

THE SHIPBUILDERS OF THOMASTON -- VII
CHAPMAN & FLINT

(There is a good deal of material on Chapman & Flint scattered among the various ship histories in Matthews' "American Merchant Ships," and Colcord collected this in an article in Vol. 2 of "The American Neptune" and in an appendix to Ranlett's "Master Mariner of Maine" (1942); but both Matthews and Colcord overlooked an autobiography of Charles R. Flint, published in 1923 under the title "Memories of an Active Life," which gives some more personal information on the partners. We have also been privileged to consult portions of a forthcoming biography of Capt. William B. Burnham, who was Flint & Company's port captain, through the generosity of Mrs. Theodore Schorske of Scarsdale, N.Y.)

As is well known, Chapman and Flint were brothers. They were the sons of Robert Chapman (c.1788-1855), a caulker, who married Lucinda Flint and lived in Nobleboro (now Damariscotta), Maine. Their oldest son, Isaac Flint Chapman, was born in 1812, and the following year another boy arrived, named for his uncle, Deacon Benjamin Flint. Deacon Benjamin was also a caulker, and as he and his wife had no children they took nephew Benjamin to rear on the death of his mother. Upon reaching his majority, Benjamin dropped the "Chapman" from his name by act of the Maine legislature, being known as Benj. Flint Jr. Robert Chapman later remarried, and had two more sons and a daughter.

Isaac Chapman followed the family trade of caulking; Mrs. Packard in her recent book relates that as a young man in return for a day's work (sunrise to sunset) on a ship's side he received one bushel of corn, which he then had to carry three miles to a mill to be ground. Little wonder that he started a store in Damariscotta in 1837, with which he did well enough to take David Dennis as a partner in 1839, and his brother Benjamin in 1840, under the firm name of Dennis, Chapman & Co.

In 1837 also began an association with Capt. Charles Everett Ranlett of Thomaston, who was a half-brother of Samuel Watts. Ranlett and Chapman each bought 1/3 of the 149-ton schooner WALDOBORO (built at Waldoboro in 1837) for Capt. Ranlett to command.

She was lost shortly thereafter through fire in a lime cargo, but in 1841 Chapman & Flint built the 280-ton bark ALABAMA at Newcastle. Capt. Ranlett took 1/3 and found owners for 3/16, while Chapman & Flint took 1/3 and found buyers for the rest.

Probably because of their association with Capt. Ranlett, Chapman & Flint transferred operations to Thomaston in 1842, where they continued storekeeping and shipbuilding, specializing in deep-water vessels for the cotton trade. The following list gives the vessels built for them, together with tonnages (old measurement) and names of master carpenters where known:

1846 Bark MILTIADES	446	W. Stetson
1847 Bark MARMION	358	"
1849 Ship IONIAN	748	"
1851 Ship WM. STETSON	1146	"
1853 Ship ORACLE	1196	R. Walsh
1855 Ship I. F. CHAPMAN	1035	"
1856 Ship ST. JAMES	1174	McDon. & Lermond
1857 Ship FRANK FLINT	1192	"
1860 Ship ST. MARK	1448	"
1862 Ship ORACLE (2)	1196	"
1865 Ship PACTOLUS	1205 gross	"
1866 Ship ST. CHARLES	1166 gross	"

The MILTIADES and IONIAN were built for Capt. Ranlett to command. In 1853 he persuaded Chapman & Flint to build a California clipper. A model was obtained from Samuel H. Pook, the Boston naval architect, and John McDonald was brought down from Donald McKay's yard in East Boston to help supervise the vessel. The result was the ORACLE, one of only a half-dozen Maine vessels to make the passage from New York or Boston to San Francisco in less than 110 days (109 days in 1858). She was built in a new shipyard that the firm had laid out in 1852 in what had been General Knox's cow pasture, and is now the foot of Ship

CONTENTS OF THIS ISSUE

THE SCHOONER AUSTRALIA (ex ALMA).....	76
COMPOSITE AND DIAGONAL BUILDING.....	77
BOOK REVIEWS	
NEWELL "Ships of the Inland Sea".....	80
CAMPBELL "Shadow and Sun".....	
SPENGLER "Auf Weiter Fahrt".....	81
CURRENT BIBLIOGRAPHY.....	81
SAILING SHIP NEWS.....	82
CORRECTIONS & ADDITIONS TO U.K. LISTS.....	82
SAILING SHIPS LAUNCHED IN U.K. 1880.....	83

Street, just above the State Prison.

The I.F. CHAPMAN was built for Capt. J. F. Chapman to command. He was a half-brother to Chapman and Flint, born in 1830. He followed the family trade of caulker until one day in 1849, when he pounded his hand with a mallet while working on the IONIAN. Then and there he threw down his tools, and when the IONIAN was finished he shipped in her with seven other Thomaston boys. He owned 1/16 of the I.F. CHAPMAN and Isaac Chapman owned 3/16, but Benj. Flint had no interest.

Apparently the ST. JAMES was launched as the JAMES COLLEY, but was renamed before documentation. In this way, Chapman & Flint, who each owned 1/8 of her, could compliment both her master, Capt. Colley (who owned 3/16), and James W. Ellwell of New York, a member of the firm that acted as agents for Chapman & Flint. There is also an indication that the second ORACLE was to have been named CHARLES E. RANLETT; she was owned entirely by Chapman & Flint, but went under a foreign flag after only three months of service.

John McDonald was born about 1825 in Shubenacadie, Nova Scotia. He learned the shipwright's trade at Halifax and then migrated to Boston, where he rose to be a foreman in the McKay yard. Soon after moving to Thomaston he came near ending a promising career before it was well begun, as he fell 25 feet from the stern staging of the ORACLE but luckily escaped without broken bones. A similar mishap the following day in Stetson, Gerry & Company's yard ended fatally for the carpenter concerned.

After the ORACLE was completed, McDonald stayed on in Thomaston as a contracting shipbuilder. His first work in this capacity was on the brig C.F.O'BRIEN in 1855 for Burgess, O'Brien & Co., after which, in association with Henry Lermont, he built a number of ships for Chapman & Flint, as tabulated above. His 1863 vessel was the 1396-ton ship NE PLUS ULTRA, in the Gilchrist & Walsh yard, which was sold for about \$100,000 to Grinnell, Minturn & Co., New York, for their London packet line. It is said that the characteristic elliptical stern of the Down East wooden vessels, a compromise between the earlier square stern and the round stern that was introduced in the clippers and persisted in Canada and the Boston region, was introduced in this period in the Chapman & Flint yard.

The brothers, Chapman and Flint, entered into one of the absolute partnerships that were not uncommon among Maine ship-

owners in the first half of the 19th Century. All their property was held jointly, and no individual accounts were kept, even for household expenses. At Thomaston they built identical houses on adjoining plots. When they moved to Brooklyn in 1858, the better to look after the chartering and upkeep of their ships, they rented two adjacent brick houses in Fort Greene Place; then they bought two adjoining brownstone houses, also identical, on Oxford Street. Later they bought two lots on Brooklyn Heights; but here their proposed residences could not be identical, since one was a corner lot.

At this time Edward O'Brien of Thomaston was living in New York, and as it was during the Civil War he had some idle funds that could not be invested safely in shipping. Accordingly, he joined Chapman & Flint in buying the whole side of Montague Terrace and building the entire row of houses, so that Chapman and Flint each had a corner.

One contract was entered into for decorating and furnishing the two houses alike, and purchases of supplies were made from day to day from the same shopkeepers. Where today could two housewives be found who would submit to such an arrangement?

In 1867 the Knox & Lincoln RR was laid out, running right across the Chapman & Flint yard and making it necessary to relocate. Bath was chosen as the new base for shipbuilding operations, and thither went John McDonald and Henry Lermont, first to a site later occupied by the Shaw Mill, and then, early in 1869, to a yard at the South End which was later used by Gardiner G. Deering. At Bath the following vessels were built by McDonald & Lermont or later by John McDonald for Chapman & Flint:

1863	Ship	ST. LUCIE	1318
1869	Ship	ST. NICHOLAS	1798
1870	Ship	ST. JOHN	1885
1871	3m. Sch	C. R. FLINT	266
1873	Ship	W. R. GRACE	1893
1874	Ship	ST. PAUL	1893
1875	Ship	M. P. GRACE	1928
1876	Ship	SANTA CLARA	1535
1877	Ship	ST. STEPHEN	1392
1877	Ship	ST. DAVID	1595
1879	Ship	MANUEL LLAGUNO	1732

At this time, the accidents of birth and death conspired to upset the neatly ordered design for living of the Chapmans and the Flints. Isaac Chapman had married the sister of Samuel P. Hitchcock, a Damascott shipwright, and they had two girls; Benjamin Flint married Sarah, sister of Captain William Tobey of Portland, and they had two sons. The elder was named for Capt. Charles Ranlett, and the second was Wallace B. Flint. Sarah Flint died in 1854, and in

1857 Benjamin Flint married Frances Scribner of Topsham, sister of Capt. David Scribner. The first break in the Chapman & Flint identity of interests came in 1877, when the ST. DAVID was built for Benjamin Flint's personal account, in order that David Scribner could command her. At the same time, Isaac F. Chapman invested in 1/4 of the ship ST. MARK, 1973 tons, built at Bath by Hitchcock & Blair, the Hitchcock of this firm being brother-in-law Samuel.

Then, with the Flint boys reaching manhood, it was decided to dissolve the partnership. Benj. Flint and his sons formed the firm of Flint & Co., while Isaac Chapman opened his own office, later taking a son-in-law, Albert G. Ropes, as partner in I. F. Chapman & Co. The names of the ships were written on slips of paper and drawn alternately from a hat in order to determine which of the new firms would have the managing of them, but no particular effort was made to divide the property further, and there were Chapman part-ownerships in Flint ships, and vice-versa, for years to come.

In the division of interests, John McDonald continued to build vessels for Flint & Co., while I. F. Chapman & Co. had their ships built by Hitchcock & Blair. In passing, there is a record that S. P. Hitchcock had sub-contracted the carpentry from John McDonald in building the ST. LUCIE in 1868.

Here are the fleets built by the two firms after their separation:

I. F. Chapman & Co.

1881 Ship	E. B. SUTTON	1827
1882 Ship	I. F. CHAPMAN	2146
1883 Ship	S. P. HITCHCOCK	2292
1884 Ship	A. G. ROPES	2460

S. P. Hitchcock died in 1884 and I. F. Chapman in 1895.

FLINT & Co.

1881 Ship	A. J. FULLER	1848
1882 Ship	ST. FRANCES	1898
1883 Bark	ST. JAMES	1566
1884 Ship	HENRY B. HYDE	2585
1885 Bark	W. B. FLINT	235
1885* Ship	JOHN McDONALD	2172
1886 Sm. Sch	ALICE McDONALD	656
1889 Sm. Sch	KATE S. FLINT	584
1890 Bark	ST. KATHERINE	1253
1891 Bark	PACTCLUS	1669

(*1893 is correct)

Beside these, John McDonald built the 524-ton three-masted schooner MYRA B. WEAVER for his own account in 1889, and in 1890 the 91-ton schooner yacht FLEUR DE LYS for George Trotter on New York. McDonald died in 1897.

About the time that the McKinley tar-

iff (1890) seriously affected imports into San Francisco from foreign sources and consequently furthered the intercoastal trade from New York, Flint & Co. established a "clipper line", dispatching sailing ships around Cape Horn from New York to San Francisco, San Diego, and Seattle. In this trade they competed with similar lines run by Sutton & Co. and Dearborn & Co.; with the Pacific Mail SS Co., which used the route via the Panama Railroad, across the Isthmus of Panama; and with the transcontinental railroads, notably the Southern Pacific. Flint & Co. bought several large vessels for this service and for the case oil trade to the Orient, including the L. SCHEPP from I. F. Chapman & Co., the R. D. RICE, the EDWARD O'BRIEN, and the S. D. CARLETON.

They also bought the British steamer PERSIAN MONARCH, which was ashore near New York, floated her, and in 1895 had her converted to a four-masted bark at Newport News under the name MAY FLINT. Originally built by McMillan at Dumbarton in 1880 for the Wilson Line of Hull, the MAY FLINT with her tonnage of 3427 (increased to 3576 in July 1896) was by far the largest sailing vessel afloat in her time. She suffered two partial dismastings in her first two voyages, before her American registry was surrendered at Hiogo in June 1896. Whether this was done to avoid capture in the Spanish-American War, or whether she had another casualty at Hiogo is not clear; at any rate her American registry was restored at New York in March 1899. Flint & Co. sold her with the rest of their fleet to the California Shipping Company of San Francisco in March 1900, and she was lost on 8 Sept. 1900 by running onto the ram of the anchored USS IOWA off the Pacific Mail Dock in San Francisco. The MAY FLINT was proceeding up the Bay under sail, having just arrived from Seattle with 5000 tons of coal, and at the time there was a firework display celebrating the 50th anniversary of the admission of California as a State.

Another refitted lame duck was the British four-masted bark CAIRNIEHILL, which the Flints bought in 1895 after she had been afire in New York harbor. She was refitted in February 1896 as the CHARLES R. FLINT, under Nicaraguan registry, and was chartered with case oil to Japan. She was lost by fire off the coast of Brazil in March 1896, under Captain C. F. Carver.

There is Thomaston background in two of the leading American steamship companies of today, the American-Hawaiian SS Co. and the Grace Line, and it is worthwhile at this point to sketch it in. The Casa

Grace was established by William R. Grace and Michael P. Grace, two Queenstown lads who went out to Peru and became partners in the import-export house of Bryce, Grace & Co. There W.R. Grace met, wooed, and, in spite of differences in their religions, won Lilius Gilchrest, who was making a voyage with her father, Capt. George W. Gilchrest of St. George.

W.R. Grace came to New York about 1870 and employed young C.R. Flint, who was later in the ship-chandlery business with Capt. Gilchrest. C.R. Flint became a partner in W.R. Grace & Co. in 1872, and the new firm then took over the New York agency of the Chapman & Flint vessels from J.W. Ellwell & Co. Two of Chapman & Flint's ships were subsequently named for the Graces, and one for their South American resident partner, Sonor Llaguno. Parenthetically, although the Grace Line today considers these two GRACES its first vessels, they actually operated to San Francisco and had no share in the Grace South American trade; nor did the Graces own any interest in them.

When in 1873 it was desired to open a Grace branch in San Francisco, Capt. James W. Chapman (who had commanded the ST. LUCIE and ST. JOHN after the I.W. CHAPMAN) went out to California and was a partner in J.W. Grace & Co. there until 1880, when he went into business for himself. Later Grace shipping operations were mostly concerned with British-built steel steamships until after World War I, although their present custom of naming vessels SANTA may be connected with Chapman & Flint's SAINTS.

In the 1890's, after the death of E.B. Sutton in 1891, the Flints and Dearborns bought out Sutton's sons and consolidated the intercoastal sailing ship lines as Flint, Dearborn & Co. After the annexation of the Hawaiian Islands in 1898, with the islands' sugar safely behind the tariff walls of the U.S. and much of it moving to the East Coast for refining, they determined to go into steam.

The entire Flint & Co. fleet of square-riggers was sold to the California Shipping Co., and it is said that the return from all nine sailors was only enough to build one steamer for the American-Hawaiian Steamship Company, as the new concern was called. The company commenced operations in 1900, but the Flints sold out early in 1902 to L.H. Lapham of the U.S. Leather Co.

(continued next month)

THE SCHOONER AUSTRALIA (EX-ALMA)

It was announced in April that the two-masted schooner AUSTRALIA, lately a yacht, but originally a cargo-carrier, had been donated by Mrs. E.P. DuPont and her son R.J. T. DuPont to the Marine Historical Association at Mystic, for preservation alongside the CHARLES W. MORGAN and JOSEPH CONRAD.

Because her official number is only 25, and because "Merchant Vessels of the U.S." fails to give her place and year of building, recording her only as "ex British ALMA (prize)", the AUSTRALIA has long enjoyed a tradition of great age. Not so long ago a magazine article gave a detailed and circumstantial account of her capture at Baltimore in 1814 during the siege of Fort McHenry and of her activities in the 1840's and a second capture, by the brig PERRY, during the Civil War ("Yachting," June 1939).

However, H.I. Chapelle recently expressed himself as confident that there is no feature of the AUSTRALIA that points to an origin older than, say, 1857, and that she is built of native American hardwoods.

The oldest document in the National Archives for the AUSTRALIA unfortunately cannot be located at present, but the Index to Registers indicates that it was Temporary Register No. 60, issued at Georgetown, D.C., 12 Dec. 1863, pursuant to a decree of condemnation by the Admiralty Court on the British schooner ALMA. We are evidently dealing with a blockade runner of the Civil War, in truth. The difficulty is that there were at least three ALMAs captured during that war.

The brig PERRY took one off New Inlet, N.C., on 2 May 1863; but this one was condemned at Boston. Another was captured by the USS VIRGINIA on 19 April 1864 off the Texas coast; but this is too late for our ALMA, and this one was sent to New Orleans for adjudication. There is no other ALMA in the "Official Records of the Union & Confederate Navies," but an obscure report of the Secretary of the Navy mentions an ALMA condemned at Washington, in which the USS SENECA was entitled to share.

Sure enough, the Washington "Star", a couple of days before printing Lincoln's Gettysburg Address in full, noted that the prize schooner ALMA, recently captured near Charleston, had arrived at Washington on 16 Nov. 1863. With the dates narrowed down, we next turned to the District of Columbia Admiralty Court Records in the National Archives, and there found Docket 78, The United States vs. Schooner ALMA and Cargo.

All the relevant papers are here, including the original report of the SENECA's commanding officer to Admiral Dahlgren (thus explaining why it had not been printed in the official records mentioned above), from which it appears that the ALMA, under George J. Gordon of Portland, Maine, but more recently a resident of Cuba, had been captured on 22 Oct. 1863 off Dobyoy Sound on the Georgia coast.

She had loaded a cargo of salt, liquor, and a few pieces of drygoods at Bermuda, touched at Nassau, and was well on her way into coastal waters when the SENECA sighted her. The ALMA attempted to hug the shoals, but ran aground on Chimney Spit, and was taken. All her people but Gordon were removed, and a prize crew under Lieut. Benjamin W. Loring took her to the Admiral, who ordered her to Washington.

Her British register, issued at Nassau on 2 March 1863, gave her official number as 46328, showed her to be 42 tons, 54.4 x 18.1 x 5 feet, built as the ELLA ALIDA at Patchogue, N.Y., in 1862, and owned by Edward Key of Holbeach, County Lincoln, residing at Brooklyn, N.Y.

On certification that ALMA and her perishable cargo were rapidly deteriorating, the Court on 30 November ordered her sold by the U.S. Marshal after five days' advertising in the "Morning Chronicle" and "Evening Star". The sale took place on 10 December, bringing a gross of \$4232.60 and a net of \$3636.75; and the ALMA was redocumented on the 12th, as we have seen.

Confirmation of the former name ELLA ALIDA in the British register was easy. Three stacks deeper in the Archives, John Nolen found for us the document of ELLA ALIDA, Permanent Enrollment No. 459, New York, 8 August 1862. It shows her as built at Patchogue in 1862 by J.P. Smith, master builder, and belonging in equal shares to Joseph Pearsall, Jesse Croft, Gilbert Croft, Charles Croft, John Abrams, Cornelius Abrams, Stephen W. Carman, and John T. Freyenhagen, all of Rockaway. The dimensions, 55'6" x 18'8" x 5'2", are sufficiently close to those of the British register to leave no doubt as to her identity. Her original tonnage was 44-92/95.

In the 1870's, AUSTRALIA was lengthened 10 feet, and her registered dimensions became 66.2 x 18.6 x 5.5 ft; 41 tons; current "Merchant Vessels of the U.S." makes her 67.0 x 18.9 x 4.8; 35 tons gross.

What will be preserved at Mystic, then, is a good specimen of a Long Island schooner of the 1860's.

COMPOSITE AND DIAGONAL BUILDING

When the British Isles and northern France began to run short of timber suitable for building large wooden vessels in the 1840's, iron began to be experimented with as a substitute. Although it was a good material, certain of its properties were considered inferior to those of wood, particularly for vessels making long voyages, and there was a good deal of effort spent in devising means whereby these undesirable qualities were minimized.

The most prominent of these faults were concerned with fouling and corrosion. The attachment of marine organisms to wooden hulls had been effectively eliminated by sheathing the affected parts with thin plates of copper, and the planking underneath was fastened with wooden treenails and copper bolts, thereby avoiding corrosion. But the bottom of the iron ship rusted and fouled, and if copper were used to combat fouling, corrosion was accelerated at a rate that quickly brought an end to the useful life of the vessel.

One other property of metal, the greater heat conductivity as compared with wood, led to more pronounced condensation of water vapor in the holds of iron vessels, since the temperature of the sea water, and hence of the bottom of the ship, is seldom the same as the air temperature. More damage to sensitive cargoes thus resulted in iron ships.

The obvious solution to these three problems is to put a wooden, copper-clad bottom into an iron-framed ship, and this is exactly what was done, the resulting product being known as the "composite ship." Although iron deck beams, knees, and other structural parts had been introduced into wooden vessels in increasing proportions for many years, the earliest composite vessel built in Britain was the two-masted schooner EXCELSIOR, launched at Liverpool 11 July 1850 by Jordan & Getty for Josias Booker. She measured 50 x 12.6 x 7.3 feet, 33 tons. Her system of construction had been patented by John Jordan, and as it appeared successful in a 50-ft. vessel the builders followed with the 282-ton bark MARION MACINTYRE, launched in February 1851, and the 787-ton ship TUBAL CAIN, launched in August 1851, both for L.H. MacIntyre & Co.

The TUBAL CAIN had iron frames spaced 18", to which the planking was fastened with nuts and bolts, the bolts being countersunk and the heads covered with a plastic composition; the planking was also

edge-bolted to increase rigidity. The bottom was then sheathed with $1\frac{1}{2}$ " yellow pine over felt, and then coppered over another layer of felt.

Meanwhile similar experiments were being carried out across the Channel. The "Nautical Magazine" for October 1852 carried an item reporting that the French Government had contracted with M-L. Arman of Bordeaux to build the corvette LA MEGIERE at Rochfort in the same manner as specimens which he had produced for the merchant service and which had proven satisfactory. Possibly one of these was the 496-ton ship LOUIS NAPOLEON, listed in 1862 "American Lloyds" as built in 1852 at Bordeaux with wood planking over an iron frame. The same volume lists the ships EMILE PERIERE, 714 tons, built at Bordeaux in 1856, and ANTONIA, 1646 tons, at Lormont in 1859, as composites.

The expensive construction method used in the TUBAL CAIN was slow to catch on, and the next British composite of prominence was the ship RED REDDING HOOD, 720 tons, built at Rotherhithe in 1857 by Bilbe & Perry, and sometimes credited with being the "first" composite. The first composite tea clippers, TAEPING, ELIZA SHAW, YANG-TZE, and BLACK PRINCE, were built in 1863, and for the next few years most of the high-grade British Indiamen were of composite construction.

In 1864 C. Lungley of London introduced a patent system of composite construction in the 624-ton bark DILPUSSUND, following her in 1865 with the ships DILAWUR and DILBHR, 1305 tons. In this system a course of planking was secured to the iron frames with galvanized iron bolts; then iron diagonal plates were fitted along the topsides from bulwarks to bilges; then an outer course of planking was secured to the inner course with yellow metal fastenings; and the bottom was then coppered. These three vessels were highly successful and all had long lives.

Another 1864 was the Glasgow-built GOSAMER of 735 tons. She had an iron sheerstrake and another strake of plating at a level below the hold beams, with diagonals joining the two. She was wrecked off Prawle Point, and her upper works parted from the rest at the level of the hold beams.

Two important events in composite ship history took place in 1867. One was the launch of H.M. gunvessel BEACON, first composite vessel in the Royal Navy. From then until 1875, of 97 vessels under 3000 tons displacement added to the British

Navy, 65 were composite.

The other event was the issuance of Lloyd's rules for composite ships, under which such noted vessels as THERMOPYLAE and CUTTY SARK were built. A frame spacing of 18" was required; after the experience with the GOSAMER, diagonal straps from bilge to sheer strake were called for; but only a single thickness of planking was specified. The plate opposite p.322 of Clark's "Clipper Ship Era" shows typical variations of this construction, while there are similar drawings of CUTTY SARK in "Mariner's Mirror," vol.27, p.192, 1941.

The SOBRAON, 2131 tons, built by Hall of Aberdeen in 1866, was the largest composite vessel ever built. The TORRENS, 1333 tons, at Sunderland in 1875, was about the last large composite merchant vessel built in Britain, and only a couple of barks in 1876 appear to have been after her.

Composite construction caught on readily in treeless Holland, the first apparently having come out in 1864 (LC v.2, p.12). As we noted on p.143 of v.1, the system survived longer in the Netherlands than elsewhere. It finally was transformed into "Meursing's system," in which the vessel was framed and plated with iron, like the ordinary iron vessel, and was then sheathed to the load waterline with Georgia pine secured by machine-turned treenails of "bulletrie" (Manilkara, a dense red timber from Surinam). Each treenail was furnished with an iron ring and was driven home from the inside against a lead bushing, then wedged on the outside with hardwood wedges in the usual manner. The copper sheathing then went on over the wood sheathing.

According to a launching story, the TJERIMAI of 1883 went overboard on 9 March from Jan F. Meursing's Nachtegaal Werf at Amsterdam, following the BAARN, SIEROE, KERSBERGEN, SHAMAT, and MERAPI, all built on this system. Strangely, the classification society registers list most of these as composites, perhaps because their watertight integrity depended ultimately on the wooden treenails. MERAPI, ex ANNA ELISABETH, however, was classed by Lloyds (as experimental and subject to biennial survey) and correctly described as "iron frame plated and planked," while KERSBERGEN, which is listed in 1887 Lloyd's as "iron frame planked" is carried 30 years later as "iron, wood-sheathed." Bureau Veritas classed MERAPI and TJERIMAI as composite and the rest as wooden!

In 1864 an attempt was made to sheath the British iron vessel IRON GEM by riveting T-irons vertically along the sides.

Then planks with slots cut in their ends to fit over the flanges of the T-irons were worked in place, all voids were filled with composition, and the copper sheathing applied on the wood. Although this method does not appear to have been successful, HMS VOLAGE and ACTIVE were wood sheathed and then coppored over an iron hull in 1867, and a good many vessels in various navies have had their anti-fouling provided for in this way right up to the present time.

In 1869 Stephen of Glasgow built the 1195-ton CITY OF HANKOW for Smith's City Line with a composite bottom -- copper over teak over iron frames -- and iron-plated topsides from a couple of feet above the load waterline. She is stated to have been the only vessel ever built in this way.

Composite construction was very unusual in America. Baldwin of Quebec laid down two composite sailing vessels in 1870, but they were destroyed by fire on the building ways, and the experiment was never repeated. Calvin & Co. of Garden Island, Ont., built some composite schooners of good size for Lake service in the 1880's, and Pusey & Jones built the 406-ton composite steamer MERCHANT at Wilmington, Del., in 1878: these are all we have noted from the 19th Century. The Emergency Fleet Corporation in 1917 contracted for composite steamers from several U.S. shipyards; these must have been the largest composite vessels ever built. The four-masted schooner VIRGINIA PENDLETON, built at Mystic, Conn., in 1919, is listed as a composite, but we have no details of her construction. The remains of one of these steamers are still visible at Newport News, at a wharf a little west of the Newport News-Norfolk ferry slip.

A few yachts, both sail and steam, have been constructed in this country on the composite principle.

Rather closely involved with composite building is the system of diagonally planking a wooden hull. Like the other type of construction, diagonal building had its origin in the desire to obtain maximum strength with minimum expenditure of timber. One of the earliest vessels built in this fashion was the royal yacht VICTORIA & ALBERT, built at Pembroke in 1843. She measured 200 x 33 x 22 feet, 1049 tons, and was planked with two layers of 1-3/4" oak, lying across each other, each at 45°, and covered with 3" larch planking running fore and aft with the

sheer. Layers of tarred ship felt were placed over each course of planking, resulting in what was claimed to be a leak-proof bottom.

About this same time a Thames builder, Pitcher, built several river steamboats on the diagonal principle; a vessel named CITY OF ROCHESTER was built this way as far back as the early 1820's; and a steamer named BANSHEE was diagonally built by Thompson about 1847. The chief exponent of this type of construction, however, was White of Cowes, who described his system in 1830 in the first volume of the Transactions of the Institute of Naval Architects. He proposed to do away with frames, using floor timbers, but providing only ceiling, two courses of diagonal planking, and a fore and aft course of outside plank.

Names of at least 10 vessels built this way by White include the 1804-ton steamer SOLENT for the Royal West India Mail Co.; two P. & O. steamers, the TARTAR and VECTIS; four sailing vessels for J. Shepherd, SOLENT, PATRICIA, MEDINA, and HEROES OF ALMA; and the full-rigger EMPRESS in 1858. The necessity of using the best grades of teak to produce the thin, strong members required in this system resulted in a cost of about \$1-15s more per ton than conventional construction, and it was not widely adopted.

The second VICTORIA & ALBERT, designed by Lang like the first, was also diagonally planked. She measured 336' x 40'3" x 24', was built of mahogany and teak, and served for 40 years from her launching in 1855.

The Hall Brothers of Aberdeen adopted diagonal planking over conventional framing in a couple of their wooden clipper ships. The 563-ton VISION of 1854 is described in the article "Shipbuilding" in the 8th edition of the Encyclopedia Britannica. She had two thicknesses of 2" larch diagonally, over one course vertically between the frames, with 4 1/2" of red Danzig pine laid fore and aft over all; the whole tied together with screw treenails of African oak.

Hall's SCHOMBERG, 2600 tons, built in 1855 and probably the largest wooden sailing vessel built in the British Isles, had a similar construction: four thicknesses of 2 1/2" larch, two diagonal between two vertical, 6" longitudinal outside planking, tarred felt between all layers, and screw treenails.

This method of building, suitable only where labor was cheap and timber dear, did not catch on, although the tea clipper

CHAA-SZE, built by the Halls in 1860, which is stated to have originally been intended for an Arctic whaler, was diagonally planked in teak.

In 1872 the wooden clipper ORIENT, originally built at Rotherhithe in 1853, was rejuvenated with a diagonal sheathing, but this is the only case of the kind that we have noticed.

The 295-ton bark UMGEMI, built by Robinson of Liverpool in 1864, was partly diagonally planked, and we have encountered two cases of composite vessels built at Liverpool with diagonal planking over iron frames. One was the 343-ton bark TA LEE, built by Holderness in 1867, which was classed as experimental by Lloyd's, subject to triennial survey; and the other was the 1117-ton ship DUKE OF EDINBURGH in 1867.

A few Canadian squareriggers had diagonal ceiling: bark JOHN MILLS, 1866; ships ROCK CITY, 1868; and COSMO, 1877.

We have not turned up any American sailing vessels built in this manner, with either diagonal planking or diagonal ceiling, but a good many of the largest wooden vessels were strengthened with diagonal straps of wrought iron or steel over the frames. Introduced probably in the Royal Navy, this system was used at Boston in the early 1850's, and was applied to the GREAT REPUBLIC. John McDonald is credited with bringing the style to Bath, and later some of the big schooners of Percy & Small, including the WYOMING, were trussed with diagonal straps in this manner.

During World War I the Supple-Ballin Shipbuilding Co. of Portland, Oregon, turned out a group of wooden hulls of about 2800 gross tons, on dimensions 295 x 45 x 24 feet, some motorships and the rest steamers. These had wooden frames, but steel upper deck knees, deck stringer, sheer strake, bulwark plate, rail plate, and diagonal straps under the upper deck. They were planked with two 1½" courses diagonally under 4½" to 4-3/4" plank. One of these, the MOUNT BAKER, became a gambling barge, was back in trading in 1941, and was finally burned at Prince Rupert, B.C., in March 1944.

The most recent diagonally-built vessel worthy of attention is the STRANGER, a yacht and exploration vessel built at Seattle in 1938 by the Lake Union Drydock & Machine Works for Fred E. Lewis. She was built of yellow cypress, and had one course of planking laid (continued p.82)

BOOK REVIEWS

NEWELL, Gordon R., "Ships of the Inland Sea," Portland, Ore.; Binsford & Morts, 1951. \$4.00.

The history of steamboating has been very skimpy until quite recently. Therefore the newest book on the subject fills a great gap in the steamer history of the Pacific Northwest. Gordon R. Newell's "Ships of the Inland Sea" covers the history of the steamer, both stern-wheeler and screw-driven, in the Puget Sound area. It completes the history of the major waterways of the Northwest that Randall Mills started in his "Sternwheelers up Columbia."

In the introduction Newell states: "In this record of the Puget Sound steamboats the principal characters aren't exactly people. But if you read it and don't agree that they have extremely human characteristics, then the story hasn't been told as it should be told."

Any reader will agree that Newell told the story properly.

The text itself tells about the activities of the vessels, leaving the technical details to tables in the appendix. This clears the text of a lot of material that would hinder the readability, and yet it is available in convenient form for those interested. The lists include all vessels on the Sound, vessels documented as of January 1951, a list of men active in the steamboat business, and a list of both steam and diesel vessels active on the Sound at the present time.

The stories are interesting because the Puget Sound "mosquito fleet" was more conglomerate than most. There were many imported vessels, such as the NEW WORLD from the Hudson and many from San Francisco and the Columbia. Also a large number had second hand engines and boilers.

The net result is an interesting tale of boiler explosions, grounding, collisions, and races. Many vessels were temporarily incapacitated when the crown plate blew off, taking the pilot house, complete with pilot, upward. Several vessels even embarrassed their owners by blowing out their fireboxes, straight down.

Newell has well footnoted the text, not with references to other books but with side notes of a humorous nature. The footnotes are as readable as the main body of the text. His information is right up to date, including reports of the sternwheel race at Elliott Bay last summer, probably the latest sternwheel race but not the last.

--Kenneth C. Lodewick

CAMPBELL, Neil, "Shadow and Sun," 334 pp; KAISER, F.F., "Ships and sails," Shipyard 17 ill. London, George Allen & Unwin Ltd. Bull., v.14, no.1, pp.4-7, Nov/Dec.1950. 1947 (reprinted 1949); 15s.

Captain Campbell was a Dubliner, the son of a Presbyterian clergyman who moved to South Africa when Neil was 11. At 17 he joined Law's ELGINSHIRE as an apprentice, shifting to ARCTIC STREAM after two voyages. At the end of his apprenticeship, in 1914, he went into steam, and a few years after World War I he joined the South African Harbor Service.

This book is mostly about the four years he spent at sea, with only a little of his earlier and later life thrown in. Captain Campbell brings to the familiar narrative of sailing-ship apprenticeship a fine Irish knack of story-telling. Like several recent authors in this field he is less reticent than is customary about adventures ashore, but he manages to convey a picture of a wide-eyed boy avoiding all serious temptations.

Part of the illustrations are from the author's own camera, and are excellent deck views from the latter days of sail.

SPENGEEMANN, Friedrich, "Auf weiter Fahrt; Kapitänsfrauen an Bord," 119 pp; 8 plates. Bremen-St.Magnus, the author. 1950.

In this latest of his series of works on German maritime history, the author attempts to fill a gap in German literature, since, although nearly every German sailing ship master took his wife along to sea, very little has hitherto been written on the subject. By a series of brief sketches and anecdotes, Herr Spengemann gives some idea of the adventures and narrow escapes that were the routine lot of these brave women.

CURRENT BIBLIOGRAPHY

ADDISON, E.Florence, "Nathaniel L.Stebbins, marine photographer," Old Time New Eng., v.41, pp.30-33, 1950

FAIRCHILD, Byron, "Reefs and shoals of colonialia justice; the case of the HANNAH & SARAH," N.Eng.Quart., v.23, pp.339-350, 1950.

FORBES, Allan, "The story of clipper ship sailing cards," Proc.Am.Antiq.Soc., v.59, pp.225-274, 1949.

INSH, George Platt, "The voyage of the OTTER 1795-97," Scot.Geog.Mag., v.67, pp.10-19, 1951. Stole 16 convicts from Sydney during a trip from Boston to China via the Northwest Coast.

KAISER, F.F., "The wooden ships needed iron men," Shipyard Bull., v.14, no.3, pp.4-7, Mar/Apr.1951. Ill. Schooner casualties repaired at Newport News.

KELLY, L.V., "Lady in distress," Beaver, pp.25-29, June 1951; ill. Loss of 3m. power sch.LADY KINDERSLEY off Barrow, Alaska, 1924.

REEDSTONE, Vincent B., "Notes on New England voyages," N.Eng.Hist.& Geneal.Reg., v.104, pp.15-21, 1950.

SWEISGUTH, Francis, "William Gardner; one of the 'Big Four' who dominated the field of yacht design over a period of sixty years," Yachting, pp.51-54, 100-104, April 1951. Illustrated with photos and plans.

WAINWRIGHT, Nicholas B., "Voyage of the frigate CONGRESS 1823," Penn.Mag., v.75, pp.170-188, 1951. Ill.

WHITE, E.W., "British fishing boats and coastal craft. I. Historical survey," 54 pp., 2 pl. H.M.Stationery Off.1950. Price 2 shillings.

MANY NEW NAUTICAL BOOKS DUE

The next few months promise to be the most fruitful period in the production of new books on sailing ship history since the beginning of World War II. Howard I.Chapelle has a book on American local types, which will present 100 plans, coming out in November. Harold Underhill is finishing "Deep Water Sail," which will cover seagoing types on a world-wide scale in plan and photograph. Friedrich Spengemann promises "Petroleumclipper," with descriptions of 140 sailing oil carriers.

Percival Marshall is bringing out a book on early British tea clippers by D.MacGregor, and the first volume of a two-volume work on British coasting schooners by Basil Greenhill. A new, expanded edition of Carr's "Sailing Barges" is also in prospect. LOG CHIPS will review these all as they appear.

PASSING OF THE DHOW REPORTED

A recent dispatch from Mombasa, Kenya, Africa, reports that only about 50 dhows a year now call there, as compared with hundreds a few years ago. Mangalore railroad ties, their main cargo, are now carried almost entirely by steamers. Within a few years, it is expected, the life described in Villiers' "Sons of Sinbad" will be a thing of the past at Mombasa.

SAILING SHIP NEWS

EEVA, Estonian galeas. Some 5 years ago about 50 refugees arr. Miami in her, and she was laid up there. Recently sold to Port-au-Prince owners and refitted.

GERDA, Swed. brig, built Gäddle 1869 and lately a museum ship there. Scrapped because of rusting of her iron fastenings, but her deck and rigging were to be preserved.

LA MERCED, m/s. Early June left Seattle for Alaska to serve as floating cannery for Peninsula Packers. Though she has her 4 masts still, her sails are not now used.

LISA, sch. Built 1799; has been saved from scrapping to become floating cafe on Lake Vener by Folke Nicklasson of Mariestad.

PORTUGAL, Br. hulk. Built Rostock 1889 as ship SENATOR VERSMANN. Hulked Stornoway 1927. Early 1951 sunk there by a trawler.

PADUA and PASSAT, 4m. Bkd. Reported reprieved from Belgian scrappers to become German aux. cargo-carrying training ships by Heinz Schliewen, Hamburg.

SCOTTISH LADY, 4m. sch. For sale as laid up, Lake Washington, by Kodiak Aleutian Salvage Co., Seattle.

SIGYN, Finn. bkn. Museum ship at Åbo. Not iron fastened, so is expected to survive a few years more.

SNETIND, 4m. Sch. Hulk burned and sunk off Boston Light 21 July, after lying 16 years on Spectacle I., Boston Harbor.

WAVERTREE, Arg. hulk, built Southampton 1885 as ship SOUTHGATE. Recently converted to sand dredge and store at Buenos Aires.

WILHELM DIECK, E. Germ. aux. bgn. Recently launched Warnemünde on the 75th birthday of the Soviet Zone President. (With thanks to Jürgen Meyer, E.D. Collins, and John Burlinson for items above.)

CORRECTIONS AND ADDITIONS TO U.K. LISTS

With the 1880 list on pages 83 and 84, we have completed all readily available listings of sailing vessels launched in the United Kingdom, having covered all sea-going vessels since 1880. Earlier lists will be forthcoming at some indefinite time in the future, when the laborious tasks of searching through "Lloyd's" and "Mercantile Navy Lists" can be resumed.

We recently found a complete file of "Marine Engineer" in the Navy Department Library, and from the launching lists located the following additional vessels:

1881 (LC, pp. 70-71) MAGICIAN, ship, 1712 tons, by Richardson, Duck, Stockton for Nevins, Welch & Co., Liverpool. NER-BUDDA, ship, 1632 tons, by Russell, Greenock, for Foley, Aikman & Co., London. Lost with all hands, Bristol Channel, 15 Oct. 1886. JOHN SMITH, wood 3m. sch, 145 tons, by Barr & Shearer, Ardrossan, for Capt. Charles Hendry.

1882 (LC p. 58) HENRY SWAYNE, bark, 735 tons, by Russell, Port Glasgow, for W. & J. Lockett, Liverpool. Out of register 1884.

1883 (LC, p. 48) SARSUMI, iron brig, 298 tons, by Napier, Shanks & Bell, Glasgow, for Secy. of State for India (pilot brig.)

1884 (LC, p. 36) TAMPICO, steel 3m. sch., 309 tons, by Stephen, Glasgow, for Jenquel Freres, Bordeaux; wrecked 1886.

1886 (L.C. vol. 1, p. 7) NETHERBY, iron ship, 1448 tons, by Ritsch, Maryport, for J. Dodd, Liverpool. Missing 1906.

We are indebted to Captain H. Daniel of Montevideo for identifying these vessels and supplying additional details.

Further additions and corrections to the 1886 and 1887 lists were given on p. 41 of vol. 1 of LOG CHIPS.

MORE NOTES ON THREE AND FOUR MASTERS

Mr. J. W. Somerville writes: "On p. 68 it is stated the FANNY ARTHUR was a three-master. That is wrong, as she was the first four-master to arrive and load in Jacksonville. That was in 1897 and she was owned by a Captain Reed in Mays Landing, New Jersey. His son was her captain. While in Jacksonville he spent a good deal of money, some of it going for a big yellow piano. They had to take off the skylight in order to get the thing aboard. This vessel and the SALLIE C. MARVIL, Capt. John Quillin of Laurel, Del., were the only schooners I have heard of having pianos."

COMPOSITES AND DIAGONALS

(continued from p. 80)

at a 45° angle, covered by another fore and aft, for a total thickness of 4 1/2". The STRANGER measured 123.2 x 22.8 x 16.5 ft. and had a canoe stern. As the USS JASPER (PYc13) she was operated as a research vessel during World War II at San Diego by the University of California Division of War Research, and some of the fundamental discoveries in underwater sound were made from her. After the war her name STRANGER was restored, and she is now owned in Los Angeles as a yacht.

SAILING SHIPS LAUNCHED IN THE UNITED KINGDOM, 1880 (IRON unless indicated)

Name	Rig	Tons	First owner	Fate
Later name	Year	Owner who changed name		
		W. Duxford & Sons, Sunderland		
COUNTY OF MERIONETH Bk		1098 W. Thomas Sons & Co., L'pool.	Hulked 1911, Adelaide.	
LANGRIGG HALL	Bark	1394 A.L. Horron, Liverpool.	Lost near Tuskar, Dec. 1882.	
		R. Foster, Sunderland		
MENAI	Ship	1435 Arvon Shipp. Co., L'pool.	Missing 1895, S. Pacific.	
OGWEN	Ship	1438 Arvon Shipp. Co., L'pool.	Lost W. coast India, 1886.	
		W. Pickersgill, Sunderland		
COPPENNAME (WOOD) Bark		329 A. Pearson & Co., Glasgow		
RAFAEL	1886	J. Malandain, Fecamp		
COPPENNAME (3m. Sch)		J. J. Gouveia, Oporto	Out of register 1927.	
		Richardson, Duck & Co., Stockton		
MOOLTAN	Ship	1725 British & Eastern Shipp. Co. Lim., Liverpool		
OLAV	1908	Alexander Bech, Tvedestrand		
VESTDAL	1917	J. A. Henschien, Tvedestrand	Submarined 24 April 1917.	
SIERRA ESTRELLA	Ship	1500 Thompson, Anderson & Co., Liverpool.		
ESTRELLA	1903	Fratelli Beraldo, Genoa.	Broken up 1928.	
		John & William Harvey, Climping, Littlehampton		
GOODWOOD (WOOD) Bark		569 A. W. Halden, Swansea		
SIAM	1893	H. Auger, Havre.	Missing Jan. 1899	
		Oswald, Mordaunt & Co., Southampton		
BRITISH YEOMAN	Ship	1953 British Ship Owners' Co. Lim., Liverpool		
STEFANO RAZETO	1899	Capt. S. Razeto, Naples		
BRITISH YEOMAN	1909	Ship. B. Y. Co. Lim., Victoria, B. C.	Sunk by SEFADLER Feb. '17.	
DUNDRENNAN	Ship	1950 J. Houston, L'pool.	Lost S. Africa April 1895	
PYTHOMENE	Ship	1954 H. Fernie & Sons, Liverpool		
RENO	1908	S. A. Riccardo Gualino & Piaggio, Genoa.		
MONTE NERO	1919	Arm. Riuniti Liguri-Lombardi, Genoa.	Scrapped 1923.	
TUBAL CAIN	Ship	2006 L. H. McIntyre & Co., L'pool.	Missing early 1882.	
		W. Pickard, Appledore, Devon.		
BEND OR (WOOD) Bktn		225 Builder	Abnd. N. Atlantic Oct. 1881	
		Harvey & Co., Hayle, Cornwall		
THORNHILL	Bktn	287 T. C. Guthrie, Glasgow		
MAERDOR	1889	P. N. Winther, Fanø, Denmark		
BRABO	1912	(Argentina)	Out register 1917.	
		S. Samuel, Llanelly, Wales		
S. T.	Bktn	325 Samuel Bros., Llanelly		
		W. H. Potter & Sons, Queens Dock, Liverpool		
KHYBER	Ship	2026 T. & J. Brocklebank, L'pool.	Lost Mar. '05, Cornwall.	
LAOMENE	Ship	1797 H. Fernie & Sons, L'pool.	Lost Feb. '04, Burma.	
		Whitehaven Shipbuilding Co., Whitehaven		
ISABEL	3m. Sch.	161 W. Burnyeat Jr., Whitehaven		
		Troon Shipbuilding Co., Troon		
SCOTIA (WOOD) Bktn		181 T. Steele, Ayr		
		Barr & Shearer, Ardrossan		
HEATHER BELL	Wood Sch.	117 Prov. Barr, Ardrossan		
WILLIE GLEN	Wood 3m. Sch	141 Glen & Robertson, Glasgow		
		A. McMillan & Son, Dumbarton		
BUCKHURST	Ship	1908 B. Shp. Co. Lim. (W. R. Price & Co.), L'pool.	Burnt 1897.	

BERWICKSHIRE	Bark	Russell & Co., Port Glasgow & Greenock. Greenock yard.
PAPA	1907	943 Thomas Law, Glasgow
MONTE MORO	1921	Fratelli Caffero, Castellamare
FIRTH OF CROMARTY	Bark	Arm. Riuniti Liguri-Lombardi, Genoa. Broken up 1923.
FIRTH OF DONORCH	Bark	957 Jas. Spencer & Co., Glasgow Missing 1882.
ESCAMBIA	1917	953 Jas. Spencer & Co., Glasgow
MANDALAY	Bark	A.T. Rosasco, Genoa Missing N. Atlantic 1922-3.
JANET McNEIL	Bark	941 W. & J. Crawford, Greenock. Lost 1911, W. Australia.
CLARA	1904	Port Glasgow Yards
SOUTFIELD	Bark	924 Browne & Watson, Port Glasgow
BANTFESHIRE	1831	Chr. Nielsen & Co., Larvik. Submarined 4 June 1917.
WIGTOWNSHIRE	Bark	937 Renton & Co., Glasgow
NEREUS	Ship	T. Law, Glasgow. Missing N. Atlantic 1912.
AONCAGUA	1893	941 T. Law, Glasgow Lost S. Africa Jan. 1885
KYLEMORE (STEEL)	Bark	R. Duncan & Co., Port Glasgow
SUZANNE	1925	1341 C.S. Caird, Greenock
KYLEMORE	1934	A.D. Bordes & Fils, Dunkirk. Submarined 1 Jan. 1917
ARGO	Ship	J. Reid & Co., Port Glasgow
MARGA	1903	1245 Nicholson & McGill, Liverpool
PHASIS	Ship	R.E. Bager, Marstal
DIANA	Bark	Gustaf Eriksen, Mariehamn Broken up 1937, Hamburg.
ALTMORE (WOOD)	Bark	Barclay, Curle & Co., Glasgow
PSYCHE (WOOD)	Bktn	1561 A. & J.H. Carmichael & Co., Greenock
HTLENSIEA	Bark	M. Brunsgaard, Drammen Broken up Jan. 1923
RESOLUTE	Wood Steam Bk	1564 A. & J.H. Carmichael & Co., Greenock. Lost 1897.
EARN	Wood Bark	C. Connell & Co., Glasgow
FANNY CROSSFIELD	Wood 3m. Sch	733 Barton & Co., Glasgow Lost June 1908.
BRITISH MERCHANT	Ship	Godlie, Sen., Kingston-on-Spey
ARTHUR FITGER		362 Thom & Cameron, Glasgow. Wrecked 1887.
MUSINO (bargo)		Kinloch, Kingston-on-Spey
DAWFOOT	Ship	335 Townsend & Speering, London
WILKOMMEN	1895	A. Stephen & Sons, Dundee
ELAKON	1906	1246 Builders (Launched Dec. 1879) Lost in collision '81.
VITTELF	1916	624 Dundee Seal & Whale Fishing Co., Dundee
		Tay Shipbuilding Co. (James Mollison & Sons), Dundee
		321 Robertson Bros., Dundee
		P. Rodgers, Carrickfergus
		Harland & Wolff Lim., Belfast.
		1743 British Shipowners Co. Lim., Liverpool
		1895 D. Cordes & Co., Bremen
		1908 James Griffiths & Sons, Seattle. Lost 1909.
		1778 North Western Shipp. Co. Lim., Liverpool
		Carl Winters, Bremen
		Alexander Bech, Tvedestrand
		J.A. Henschien, Tvedestrand. Submarined 23 April 1917

UNITED KINGDOM SHIPBUILDING IN 1880

Captain H. Daniel, as before, has checked this list from his extensive files and supplied most of the material on final endings. Brocklebank's *ENTER*, 2026 tons, built by Potter, was the largest vessel of the year.

Two 1880 vessels were later owned in North America. BRITISH YEOMAN was owned in turn by R.P. Rithet, Eschen & Minor, J.S. Moore, and Balfour, Guthrie, all of San Francisco. BRITISH MERCHANT, as ARTHUR FITGER, was burned out at Seattle and became a barge.